REMARKS

The Examiner is thanked for the performance of a thorough search.

No claims have been added, cancelled, or amended. Hence, Claims 1-18 are pending in the application.

I.   SUMMARY OF THE REJECTIONS

Claims 1-18 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Rich et al., U.S. Patent No. 6,457,065 ("RICH").

II.   REJECTIONS BASED ON THE PRIOR ART

A.   CLAIMS 1 AND 10

Claims 1 and 10 recite the following features:

receiving a command to perform **one or more file system operations**;
in response to said command, performing **a plurality of operations including
        said one or more file system operations**;
wherein the step of performing the plurality of operations includes:
        performing **a first subset of said plurality of operations as part of a
                first transaction**; and
        performing **a second subset of said plurality of operations as part of a
                second transaction that is nested in said first transaction**.

Thus, Claims 1 and 10 expressly recite the features of receiving a command to perform one or more file system operations, and performing a plurality of operations including the one or more file system operations, where a first subset of the plurality of operations is performed as part of a first transaction, and a second subset of the plurality of operations is performed as part of a second transaction that is nested in the first transaction. The Applicants respectfully submit that none of these features is disclosed, taught, or suggested by RICH.

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1. The rejection of Claims 1 and 10 in the Office Action

For the elements in Claims 1 and 10 and for the elements of many other claims, the

Office Action provides broad citations of whole columns in RICH and does not specify exactly

what in the RICH reference corresponds to or constitutes each element or feature of the claims.

In an Office Action "the particular part relied on must be designated as nearly as practicable …

The pertinence of each reference, if not apparent, must be clearly explained …" (MPEP §707,

citing 37 C.F.R. §1.104(c)(2)), and "the particular figure(s) of the drawings(s), and/or page(s) or

paragraph(s) of the reference(s), and/or any relevant comments briefly stated should be

included." (MPEP §707). The present citations to RICH do not provide the Applicants with

adequate notice or reasonable particularity with respect to the basis of the rejections. Instead,

large portions of RICH are simply identified in a non-specific way. As a result, the Applicants

have had to engage in guesswork to determine the basis of the rejection. In particular, in

regards to Claims 1 and 10, the Applicants cannot see any structure or functions in RICH that

correspond to the features in these claims. As best understood by the Applicants, the Office

Action makes an extremely broad, and technically incorrect, analogy between replicating

objects in a distributed object-oriented system and performing file system operations in a file

system.

RICH deals with improving the performance of distributed object systems by providing

techniques for efficient replication of objects among the nodes of the distributed system.

(Abstract.) The objects in the distributed object system may have several instances that reside

on different nodes. An object is described with respect to existing object distribution

techniques, such as Enterprise Java Beans (EJB), and Common Object Request Broker

Architecture. (Col. 1, lines 40-45.) Thus, RICH teaches that the term "object" carries its

ordinary meaning as understood in the art, which is an instantiated object-oriented class that

encapsulates object properties and/or object data with the procedures that operate on the object

properties and/or object data. (See col. 1, line 60 to col. 2, line 8.) Nothing in RICH describes,

teaches or suggests that the term "object" is used to mean anything but this ordinary meaning,

let alone suggest that somehow "object" is used to describe an element of a file system, and that

a distributed object system is somehow analogous to a file system. Furthermore, RICH does

not teach, describe or suggest that its techniques for replicating objects among distinct nodes in

a distributed system apply in anyway to file system operations performed in a file system.

2. RICH fails to teach receiving a command to perform one or more file system

operations and performing a plurality of operations including the one or more

file system operations

The Office Action asserts that the paragraph in RICH, in col. 7, line 53 to col. 8, line 18

teaches "receiving a command to perform one or more file system operations", and "performing

a plurality of operations including said one or more file system operations." The Applicants

respectfully disagree.

In col. 7, line 53 to col. 8, line 18, RICH states the following:

According to the present invention, the scope of the replication is a transaction.
What constitutes a transaction is an application-dependent decision. Using
commonly-known industry terms, a transaction represents a logical group
changes to one or more objects that will be performed in an atomic manner (that
is, either all operations within the transaction are performed, or none of them are
performed). U.S. patent application Ser. No. 09/001,980, titled "Technique for
Managing Objects which are the Target of Multiple Transactions in a
Client/Server Environment" (hereinafter, "the first related invention"), defines a
technique for using a transactional approach to maintain consistency in updating
objects, where the tasks a user (or application program) performs are organized
into transactions. Using the transactional approach defined in this first related
invention, all changes that the user wants to make to an object within the scope
of a transaction are made first to an internal copy (called a "version") of the
object, without actually updating the persistent, stored object itself. The user

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eventually decides whether to permanently commit the changes encompassed by the transaction, or whether to discard them. If the user chooses to commit, then the updated object in the version is copied to the persistent store. If the user chooses to discard (or "roll back") the changes, the persistent store is unchanged. (The concept of persistent store is well known, and will not be described in detail herein. In a client/server or multi-tier environment, a persistent store of objects may be maintained in or one or more locations which are accessible by applications in the computing environment, such as one or more common databases. Such databases may be maintained in, for example, the data repository 348 of FIG. 3 or the long term storage 230 of FIG. 2.)

The paragraph recited above describes a transactional approach to maintain consistency in updating objects located on different nodes of a distributed system, but does not describe, teach or suggest "receiving a command to perform one or more file system operations", let alone describe "performing a plurality of operations including said one or more file system operations" as recited in Claims 1 and 10. Furthermore, the Applicants find nothing else in RICH that may even remotely describe, teach, or suggest that the transactional approach in RICH relates to any operation other than the operation of updating an object.

3. RICH fails to teach performing a first subset of the plurality of operations as part of a first transaction and performing a second subset of the plurality of operations as part of a second transaction that is nested in the first transaction

The Office Action asserts that the features of "performing a first subset of said plurality of operations as part of a first transaction" and "performing a second subset of said plurality of operations as part of a second transaction that is nested in said first transaction" are disclosed in col. 7, line 53 to col. 8, line 18, and further in col. 8, line 63 to col. 9, line 40. The Applicants respectfully disagree.

As discussed above, in col. 7, line 53 to col. 8, line 18 RICH describes a transactional approach to maintain consistency in updating objects located on different nodes of a distributed

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system, but does not describe or suggest that such an approach may be relevant to performing

operations in a file system. In col. 8, line 63 to col. 9, line 2, RICH generally describes a

distributed computer system in which nodes may act as both clients and servers. Further, RICH

describes that a transaction may exist across many nodes or within a node. (Col. 9, lines 2-3).

Significantly, in col. 9, lines 2-12, RICH states that

> The logical transaction model for a replicated distributed object system, as
> defined by the present invention, forms a tree of nested transactions. A physical
> node may have nodes of transaction trees for multiple transactions, and may be a
> parent for some transactions while being a child for other transactions. **The
> present invention uses these nested transactions trees to manage changes to
> the replicas, as well as actual changes to remote objects in the persistent
> store, resulting from one or more concurrent and/or nested transactions.**

The rest of the paragraph asserted by the Office Action as disclosing features of Claims 1 and

10, namely col. 9, lines 12-40, describes nested transactions in terms of logical trees where

nested transactions are represented as tree branches and flat transactions are represented as tree

leafs.

Thus, nothing in col. 8, line 63 to col. 9, line 40 in RICH teaches, suggests, or describes

the features of Claims 1 and 10 that require "performing a first subset of said plurality of

operations as part of a first transaction" and "performing a second subset of said plurality of

operations as part of a second transaction that is nested in said first transaction." To the

contrary, the portion of RICH highlighted above suggests that RICH discloses use of nested

transactions exclusively for managing changes to replicated objects (or replicas) and changes to

remote objects in persistent store. Nothing in RICH describes, teaches, or even remotely

suggests that nested transactions may be used to manage any file system operations.

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For these reasons, the Applicants respectfully submit that RICH does not describe,

teach, or suggest any of the features recited in Claims 1 and 10. Thus, withdrawal of the

rejection of Claims 1 and 10 under 35 U.S.C. § 102(e) over RICH is respectfully requested.

B.   CLAIMS 4 AND 13

Claims 4 and 13 are dependent upon Claims 1 and 10, respectively, and thus include

each and every feature of the corresponding independent claims. Therefore, it is respectfully

submitted that Claims 4 and 13 are allowable for at least the reasons given above with respect

to Claims 1 and 10.

In addition, Claims 4 and 13 recite the following additional novel features:

> the step of receiving the command is performed by an entity that resides external to a
> database server; and
> the step of performing said plurality of operations includes said entity sending database
> commands to said database server.

The Office Action asserts that RICH discloses these features in col. 7, line 53 to col. 8, line 18,

and in col. 11, lines 21-35. The Applicants respectfully disagree.

As discussed above, nothing in RICH, including the paragraph in col. 7, line 53 to col.

8, line 18, teaches or even remotely suggests that nested transactions may be used to manage

file system operations. Furthermore, the paragraph in col. 11, line 21-35, fails to teach that an

entity other than a database server receives a command to perform one or more file system

operations, and that a database server performs a plurality of operations that include the one or

more file system operations. The paragraph in col. 11, lines 21-35 states:

> Transactions whose parent resides in a different node of the distributed object
> system consist of two components: the "server transaction" in the parent node
> and the "current transaction" in the client node. This is illustrated by the
> example in FIG. 4B, where node 460 has the top-level transaction 470 and two
> children 471, 472 which are siblings. Child transaction 471 is designated as a

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"server child transaction", because it has a child transaction 473 (which is designated as a "client child transaction") on client node 462. Client child transaction 473 then has two children 474, 475 in this example. A root node of a client transaction (such as node 473) serves as the parent transaction for the scope of the client node, but is a child of the server transaction (such as node 471). A reference to a parent transaction in a remote node is called a "transaction proxy."

The Applicants fail to find anything in this paragraph, or for that matter, anything in RICH, which even remotely suggests the feature of Claims 4 and 13 requiring that the step of receiving a command to perform one or more file system operations is performed by an entity other than a database server. Furthermore, the Applicants have not found anything in RICH that is even remotely related to a feature in which a database server performs a plurality of operations that include one or more file system operations, let alone teach that a subset of the plurality of operations may be performed as a transaction that is nested in another transaction that includes another subset of the plurality of file system operations.

For these reasons, the Applicants respectfully submit that RICH does not describe, teach, or suggest any of the features recited in Claims 4 and 13. Thus, withdrawal of the rejection of Claims 4 and 13 under 35 U.S.C. § 102(e) over RICH is respectfully requested.

C.   CLAIMS 2-3, 5-9, 11-12, AND 14-18

Each of Claims 2-3, 5-9, 11-12, and 14-18 is dependent upon one of independent Claims 1 and 10, and thus includes each and every feature of its corresponding independent claim. Each of Claims 2-3, 5-9, 11-12, and 14-18 is therefore allowable for the reasons given above for Claims 1 and 10. In addition, each of Claims 2-3, 5-9, 11-12, and 14-18 introduces one or more additional features that independently render it patentable. However, due to the fundamental differences already identified, to expedite the positive resolution of this case a

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separate discussion of those features is not included at this time. Therefore, it is respectfully

submitted that Claims 2-3, 5-9, 11-12, and 14-18 are allowable for the reasons given above with

respect to Claims 1 and 10.

III. CONCLUSION

The Applicants believe that all issues raised in the Office Action have been addressed.

Further, for the reasons set forth above, the Applicants respectfully submit that allowance of the

pending claims is appropriate. Reconsideration of the present application is respectfully

requested in light of the remarks herein.

The Examiner is respectfully requested to contact the undersigned by telephone if it is

believed that such contact would further the examination of the present application.

To the extent necessary to make this reply timely filed, the Applicant petitions for an

extension of time under 37 C.F.R. § 1.136. If any applicable fee is missing or insufficient,

throughout the pendency of this application, the Commissioner is hereby authorized to charge

any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,
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